Penetrating Fire Extinguisher

Feecon Corporation, Westboro, Massachusetts manufactures fire protection systems and equipment used by airport, municipal and industrial firefighting organizations. One of its products, in production for 10 years, was a bayonet type piercing nozzle used in combating aircraft crash fires; connected to a hose, the nozzle could be thrust through the skin of an airplane, allowing water or chemical sprays to reach the plane's interior. The nozzle worked well on small aircraft with relatively thin aluminum skins but was ineffective on larger, thick-skinned aircraft.

Seeking to add the latter capability, Feecon learned of NASA technology developed for use in the event of a crash landing by the Space Shuttle Orbiter: a fire-

extinguisher with a hard, pointed tip that could be rammed through the skin of the Orbiter to dispense chemicals inside the spacecraft. Developed by Kennedy Space Center and engineers of The Boeing Company, the ram-type nozzle can also be used to penetrate metal skins of aircraft, trains and other vehicles or to pierce wood, plasterboard, plastic or metal walls in buildings.

Feecon obtained a NASA license for commercial use of the technology and is now manufacturing and marketing the Cobra Ram Piercing Nozzle, shown being demonstrated at upper right. It is used primarily by airport firefighters to discharge water or chemicals on aircraft fires in such internal areas as cabins, cargo compartments, accessory bays or ducts. The 30-pound, 82-inch long nozzle has a piercing tip of hardened steel at the spray delivery end (left) and an iron ram at the other end. The firefighter grips a rectangular loop with one hand (above) and with the other he forcefully slides the ram along the tube so that the ram energy is transmitted to the piercing tip. The procedure is repeated until penetration is achieved, then a valve is turned to discharge fire extinguishing agents into the interior fire area. The primary advantage of the Cobra Ram is that its design permits the nozzle to be held in one spot during repeated blows of the ram. There is no National Fire Protection Association (NFPA) requirement that airport crash fire trucks carry the piercing nozzle but it is being considered as an NFPA recommendation.